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FOR A FRAMEWORK CONVENTION ON CLIMATE CHANGE

EXECUTIVE SUMMARY OF THE NATIONAL COMMUNICATION OF

AUSTRALIA

submitted under Articles 4 and 12
of the
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Committee, the interim secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

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Copies of the Australian national communication can be obtained from:
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AUSTRALIA

Introduction

1. Australia, along with over 150 other countries, signed the United Nations Framework Convention on Climate Change (FCCC) at the United Nations Conference on the Environment and Development in June 1992. Australia became the ninth country to ratify the Convention when in December 1992 it lodged its instrument of ratification with the United Nations Secretary-General.

2. This national communication sets out how Australia, as an Annex 1 Party to the convention, is meeting its international obligations. It provides a preliminary overview of the national circumstances that influence Australia's response capacity and also outlines what strategies and measures have been taken to date to address the enhanced greenhouse effect.

Australia's National Context

3. Australia is the lowest, the flattest and, apart from Antarctica, the driest of the world's continents. With a land mass of over 768 million hectares, it is the sixth largest country in the world but with a population density of only two people per square kilometre. Australia's population was 17.5 million at June 1991, an increase of 1.4 per cent over the previous year. Net migration accounted for 43 per cent of this increase. In the period 1985–92, Australia had a population growth rate that was higher than all other Annex 1 countries with the exception of Turkey.

4. Australia has a wide range of climatic zones. Rainfall variability is characteristic of much of the continent. Extreme climate events such as droughts, floods, tropical cyclones, severe storms and bushfires are regular environmental factors requiring flexibility and adaptation.

5. Land use in Australia covers a vast array of activities including agriculture and forestry, nature conservation, mining, human settlement and infrastructure. The present standing biomass of forest vegetation is estimated to contain about 70 gigatonnes of carbon dioxide. Australia's forest resources encompass some 41 million hectares of native forest and 1 million hectares of plantations. In recognition of its unique and megadiverse fauna and flora, Australia has one of the world's largest designated areas for nature conservation with over 50 million hectares of terrestrial parks and reserves and nearly 40 million hectares of marine and estuarine protected areas.

6. While the service sector is increasingly important to the economy (accounting for 70 per cent of GDP in the 1990s), Australia is very reliant on the export of fossil fuels. In 1990-91 the coal industry accounted for 14.5 per cent of total commodity exports. Australia has no domestic nuclear power facilities and strictly regulates the development of new uranium mines and uranium exports. This contrasts markedly with other OECD countries where average consumption of nuclear energy is around 23.8 per cent of energy use.

7. In 1989-90, the energy production sector, excluding coal and uranium production, accounted for 5 per cent of GDP, one per cent of total employment, A$60 billion in capital investment and 8 per cent of total Commonwealth Government revenues. While demand for energy has been growing strongly over the last three decades, and Australia's efficiency in energy production has increased over this period. Total emissions are estimated at less than 1.4 per cent of world emissions although per capita emissions are high because of the export orientation of the economy and size of energy intensive industries such as aluminium smelting.

8. Australia is for historical and geographical reasons reliant upon fossil fuel-dependent road transport because of the dispersed distribution of population centres across the continent and the low density of settlements within major urban areas. Almost 90 per cent of passenger kilometres and 33 per cent of freight kilometres are accounted for by road transport. Overall, the transport sector accounts for some 24 per cent of all emissions of carbon dioxide from fossil fuels.

9. While Australia recognises that accurate scientific data on the potential regional impacts of climate change are not yet available, there are particular vulnerabilities that warrant action in line with the precautionary principle. For example, the potential dangers of the spread of tropical diseases and pests could adversely affect the agricultural and pastoral industries. Coastal areas may be subject to greater storm and flood frequency increasing the cost of infrastructure and services.

Australia's National Greenhouse Gas Inventory (NGGI)

10. Australia has used a methodology based on the IPCC methodology to compile the Australian National Greenhouse Gas Inventory (NGGI).

11. A key issue for Australia is the anthropogenic burning of biomass. This phenomenon has been occurring for at least the last 40 000 years as part of land management practices and is still used throughout Australia. Deliberate regular burning of biomass under controlled conditions causes less damage to vegetation, wildlife and human settlements than catastrophic bushfires. Because controlled

burning does not change the natural carbon cycle, carbon dioxide emissions from that source have not been included in the inventory.

12. Overall, while the inventory is consistent with the current state of world knowledge in greenhouse gas assessments the level of robustness in the figures does vary with the quality of the data obtained. For example, while the transport sector estimates have a high degree of accuracy (plus or minus 10 per cent), the land use and forestry sector and the agriculture sector have a much higher degree of uncertainty (typically a factor of two). This is because of the implicit difficulty in obtaining accurate data and statistics on land clearing and on the carbon content of vegetation and in soils. Research to improve the quality of the data will continue.

13. For 1990 the inventory shows that Australia emitted 572 million tonnes of carbon dioxide equivalent, of which the distribution by gas was:

.	Carbon dioxide	73.4%
.	Methane	22.9%
.	Nitrous oxide	3.1%
.	Other	0.6%

14. Total carbon dioxide emissions for 1990 from all sectors amounted to 420 million tonnes. Carbon dioxide emissions from energy production and use (282 million tonnes) dominate. Emissions from land use change and forestry contributed just over 30 per cent of the total.

15. Within the energy sector, the main source of carbon dioxide emissions is energy transformation industries producing 160 million tonnes of carbon dioxide. Emissions from energy and transformation industries were close to twice those of transport. Industrial processes sector emissions are only 1 per cent of total carbon dioxide emissions. The main source of emissions in the biosphere was land clearing for agriculture which are estimated by the expert group to lie between 39 million tonnes and 352 million tonnes with a best estimate of 156 million tonnes. Managed forests are however a sink and carbon dioxide uptake by managed forests and pasture improvement amounted to 25 million tonnes or 16 per cent of carbon dioxide emissions from land clearing.

16. Methane emissions for 1990 amounted to 6.2 million tonnes. In terms of carbon dioxide equivalents, methane emissions at 131 million tonnes accounted for about 23 per cent of total emissions of 572 million tonnes. The main sources of methane emissions were waste and agriculture, especially livestock.

17. Nitrous oxide emissions of 17.4 million tonnes carbon dioxide equivalent make up 3 per cent of total 1990 greenhouse gas emissions of 572 million tonnes. Agriculture was the primary source of nitrous oxide emissions.

18. The sources of other minor gases are discussed in the body of the report.

National Greenhouse Response Strategy (NGRS)

19. The primary framework for addressing climate change is the National Greenhouse Response Strategy which along with the National Strategy for Ecologically Sustainable Development was endorsed by Australian Governments (Commonwealth, state and local) in 1992. It is important to note that the NGRS is a dynamic strategy that provides for a phased approach to the introduction of measures in order to achieve cost-effective outcomes of lasting, long term benefit.

20. In the first phase of measures adopted under the NGRS, Australian governments agreed to a range of initiatives based on the comprehensive approach of addressing all sources, sectors and sinks of greenhouse gases. The prime objective is set by the Interim Planning Target which aims to:

> stabilise greenhouse gas emissions (not controlled by the Montreal protocol) based on 1988 levels by the year 2000 and to reduce these emissions by 20 per cent by the year 2005...subject to Australia not implementing response measures that would have net adverse impacts nationally or on Australia's trade competitiveness, in the absence of similar action by major greenhouse gas producing countries.

21. The main initiatives aimed at addressing greenhouse gas emissions are:

- structural reform of the electricity sector (including integrated least cost planning)
- energy pricing to better reflect economic, social and environmental costs
- removal of impediments to free and fair trade in natural gas in Australia
- promoting greater use of co-generation and renewable energy options
- improved energy performance in the household, industrial, commercial and transport sectors
- provision of information for energy users.

22. The NGRS recognises that greenhouse friendly policies must be supported by institutional and structural reform particularly in the energy sector. This sector is primarily the responsibility of the states under Australia's federal system of government.

National Electricity Market Reforms

23. The Council of Australian Governments (a domestic heads of government forum for discussing broad, strategic policy issues) agreed to cooperate in the implementation of major structural reform of the electricity supply industry. A National Grid Management Council has been established to oversee the implementation of reforms that include the introduction of competition in the generation sector and the establishment of an independent interstate transmission network separate from generation and distribution interests. The scheduled implementation date for the competitive electricity market is 1 July 1995.

24. The move to a competitive market will allow a range of specific energy benefits to be realised. A competitive market will provide the right price signals which will ensure that efficiency measures, renewable energy options and demand side measures are adopted where they are more cost-effective.

25. For greenhouse gas abatement, this means opening up the opportunities for cleaner energy forms (for example, natural gas and solar power) as well as giving co-generation and demand management options the capacity to compete with traditional coal-based electricity generation. Australia already is a world leader in solar technology while co-generation and demand management are being progressively implemented at enterprise level.

26. For example, a demand management action plan developed by the State Electricity Commission of Victoria resulted in the investment of A$33 million in energy efficiency measures for Victorian businesses. Telecom Australia has used photovoltaic technologies since the 1980s for telecommunications while economic incentives have been used nationally to encourage demand for solar hot water systems. In South Australia, methane from landfill sites is being used to generate power to supplement the state electricity grid.

27. Also, a major point is that the development of a national electricity market is providing incentives for the growth states like Queensland to draw on the excess generating capacity of states such as New South Wales, thereby obviating the necessity for additional electricity generation in the future. In addition, pricing policies that better reflect the full cost of supply and that eliminate cross subsidies should also encourage more sensible investment in energy infrastructure.

Sectoral Initiatives

28. A national program of action on energy management involving the

Commonwealth, states and territories is coordinated by the relevant ministerial council. Energy audits, the use of energy efficient building materials and appliances, guid ines for passive solar housing and strategic designs for more energy efficient urban development are all being actively investigated or implemented at national, state or local government level.

29. In recognition of the importance of the residential and commercial sectors in energy use, the Prime Minister in 1992 announced energy efficiency targets for buildings owned or occupied by the Commonwealth. A 15 per cent increase in efficiency is anticipated within five years and 25 per cent within 10 years. In the manufacturing sector the Commonwealth has encouraged firms at the enterprise level to adopt greater energy efficiency through programs such as Enterprise Energy Audit Program, the Cleaner Production Program and the Better Business by Environmental Management Program. Measures have also been included in the tax system to enable firms to invest in new plant and equipment and offset the costs of environmental expenditures. This provides an incentive for investment in greater energy efficiency. In the transport sector government initiatives with the potential to save energy and reduce carbon dioxide emissions include rail reforms, road transport reform, the promotion of technical innovation, controls on vehicle emissions, a national bicycle strategy, improving the efficiency of public transport and fleets, the use of alternative fuels, urban planning and design and travel demand strategies.

30. Sustainable land use management is becoming the subject of increasing attention in Australia with greenhouse benefits stemming from the enhancement and preservation of the carbon sinks in vegetation and soils. The period 1990–1999 has been declared the decade of Landcare and more than A$320 million has been committed by the Commonwealth for land management, tree planting and remnant vegetation protection programs. Tax concessions have also been provided to enable rural producers to offset environmental management costs. Measures to manage land clearing and forestry have also been introduced as part of the broad range of measures agreed as part of the National Strategy for Ecologically Sustainable Development and the National Forest Policy Statement.

31. Research into the processes of climate change and its monitoring has also been a major task for Australia's premier research institutions. A core research program is conducted by CSIRO in conjunction with the Bureau of Meteorology and leading universities to investigate the fundamental aspects of climate change. A dedicated research program has also been established to increase understanding of the processes and sensitivities of climate change and the implications for adaptation. International, regional and bilateral research cooperation is also undertaken by Australia.

32. A number of preliminary research activities on the economic impact of response measures have also been undertaken.

33. The importance of having all stakeholders involved in the consideration and implementation of greenhouse gas abatement activity is underscored by the Commonwealth Government's establishment of the National Greenhouse Advisory Panel (with membership drawn from key community interest groups), the establishment of non-government organisation forums to keep agencies abreast of current developments (in science and policy) within an open government framework. A specific greenhouse subcommittee of the Intergovernmental Committee for Ecologically Sustainable Development has also been established to consider possible options to strengthen the NGRS.

34. In recognition of the global nature of climate change, international assistance has also been provided to developing countries both on a multilateral and bilateral basis. For example, Australia has contributed A$30 million in the pilot phase for the Global Environmental Facility and further funds are planned for replenishment. Other assistance has been provided through a range of specific program areas relating to climate change.

Projections and impacts of measures

35. On present estimates, if no greenhouse gas measures were taken, Australia's greenhouse gas emissions would grow from 572 million tonnes of carbon dioxide equivalent in 1990 to 654 million tonnes in the year 2000. This would represent an increase of 82 million tonnes or 14 per cent over 1990 levels. This estimate is, however, dependent on the present accuracy and continuing validity of a number of assumptions, such as oil prices, population growth rates, agricultural markets and technological change.

36. If existing measures are continued at the current rate of application, it is estimated that they would result in emission reduction of about 44 million tonnes of carbon dioxide equivalent in the year 2000. Of this, measures aimed at reducing emissions from sources are estimated to contribute 29 million tonnes and measures aimed at sink enhancement are estimated to contribute the remaining 15 million tonnes.

With current measures taken into account, Australia's greenhouse gas emissions in the year 2000 are projected to be 606 million tonnes of carbon dioxide equivalent, which is 38 million tonnes (7 per cent) above 1990 levels.

Future Directions for Australia

37. The Australian Government has always envisaged that the NGRS would be a framework for a phased response. The review of the NGRS by the National Greenhouse Advisory Panel will provide guidance on possible additional measures that might be introduced in the future. Currently the Commonwealth Government, in consultation with stakeholders, is examining the appropriate areas on which to focus future efforts. Energy services, urban and infrastructure development, transport, commerce and industry and sink conservation and enhancement are six areas from which possible measures might be drawn.

38. The Intergovernmental Committee for Ecologically Sustainable Development which includes representation from Commonwealth and state and territory first ministers in partnership with the National Greenhouse Advisory Panel will have a prime role in assessing opportunities for the development of the NGRS. The Commonwealth Officials Working Group will also assist in facilitating the process for considering further measures in 1994. The need for key stakeholders to be actively involved and to contribute to the process is recognised by the Commonwealth Government. At the same time the scope for international cooperation on both a bilateral and a multilateral basis is also a future area for activity.